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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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C-O-N-F-I-D-E-N-T-I-A-L

COUNTRY Hungary

SUBJECT Aluminum Plants at Tatabanya and Inota

REPORT

DATE DISTR. 29 OCT 1957

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SOURCE EVALUATIONS ARE DEFINITIVE

Attached to the report is a sketch of the main circuit of the Inota aluminum plant

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STATE	#X	ARMY	#X	NAVY	#X	AIR	#X	FBI		AEC					

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THIS IS UNEVALUATED INFORMATION

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General Background

1. The plants at Tatabanya (N47-33, E18-26) and Inota (N47-12, E18-10) were two major achievements of the Hungarian Soviet Bauxite Aluminum Company (MASZOBAL). On 1 January 1955 both of them became Hungarian State property and were administered by the Aluminum Industry Directorate of the Ministry of Chemical Industry and Electric Power. No information was available on the status of these plants following the October uprising.

Tatabanya Aluminum Plant

2. Construction started in 1948 and the plant was operating by 1950. Its geographical location was determined by the vicinity of the power plant at Banhida (N47-35, E18-24) and of the bauxite processing plant at Almasfüzitő (N47-43, E18-15), the main sources of energy and alumina, respectively.

3. The plant operated 200 to 220 electrolysis cells (5 to 7 voltage, 25,000 amperes), united in blocks of 20 cells. The yearly output was 14,400 tons of aluminum of 96 to 98

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percent purity. The monthly power requirement was 25,000,000 kwh. and one-time peak consumption amounted to 35 MW. Production of one ton of aluminum required 21,000 kwh.

4. The labor force was estimated at 350, including about 40 on the technical and administrative staffs.

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Inota Aluminum Plant

5. This was the largest alumina processing plant in Hungary. The Inota Aluminum Plant was built, using political prisoners mainly. Its technical equipment was furnished partly by Hungarian firms and partly by Czechoslovak enterprises. Operation started in 1952.

Technology of the Electrolysis Process

6. In the electrolysis shop 150 to 160 reduction cells were united into blocks of 16 to 20 cells (5 to 7 voltage, 50,000 amperes), each block connected with four RMNV 500 by 6, 3,000-ampere mercury-arc rectifiers. Transport of raw material and of finished aluminum was accomplished with the help of a crane which could move along the entire shop. Charging of the cells was done by hand, one worker being able to operate from four to six cells. One shift in the electrolysis shop, including handymen and supervisors, totalled 50. Samples of every cell's output were continually forwarded to the laboratory.

7. Power was supplied to the electrolysis shop by the nearby Inota power plant, through a double system of large-diameter collector rails installed on a bridge.[1] The other buildings' supply was assured by an underground cable system. The electrolysis process used about 42,000,000 kwh monthly, the one-time maximal consumption being 60 MW.

Aluminum Output

8. The yearly output was 24,000 tons of aluminum with 96 to 98 percent purity. In order to refine it to 99.9 percent (so-called "four times nine") purity, the plant was provided with a remelting furnace which could be heated either by gas or by electricity. The amount of refined alumina was unknown.

Shortcomings and Breakdowns

9. Normal functioning was often hampered by second-rate raw material. The quality of the anodic paste, imported from Poland, especially proved to be inferior. It caused impurity and led to anode effects that were costly and

affected the electrical equipment. Because of the anode effects, the yearly loss of energy was estimated at 1.2 to 1.5 million forint. Much trouble resulted from the faulty installation of the rectifiers in the electrolysis unit, for which Czech firms bore the blame. Another drawback was the power plant. Its apparatus, furnished and installed by Czech enterprises, proved defective and its coal supply, brought from the Varpalota mines, was insufficient and of low caloric value (3,000 cal.).

10. The most serious breakdown occurred in spring 1953 when the transformer station was destroyed by fire and from 90 to 110 cells "froze in" while the electrolytes could be moved from 30 to 40 cells without ruining their linings. The electrolysis shop started to operate again after a two months' suspension but the total capacity was reached very slowly in four months' time. The breakdown resulted in an 8,000-ton loss of aluminum.

Labor Force

11. The labor force was estimated at about 400, 150 of which comprised the electrolysis shop's three shifts. Other parts of the plant employed an additional 150 persons, while the technical and administrative staff amounted to between 70 and 80 people.

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Sketches of the Inota Aluminum Plant

12. On page 5 is sketch of the location of the main buildings. Enclosure 1 is a diagram of the main circuit. Following is the legend for the diagram. 50X1-HUM

(1) Double feed on collector rails from the switchgear installation of the Power Plant of Inota.

(2) Current transformers.

(3) Potential transformers.

(4) Expansion circuit breakers.

(5) Disconnecting switches.

(6) 2 x 3 phase collecting bar system.

(7) Branch lines of the double rail system.

(8) Variable ration transformers.

(9) Self-supply of the transformer station.

(10) Self-supply of the transformer station (reserve).

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(11) Rectifying transformers.

(12) Collecting bar measurements.

(13) Fuses.

(14) Primary cable.

(15) Cumulative grid rectifier.

(16) Forming transformer.

(17) Substation (self-supply) transformer.

(18) Mercury vapor rectifiers (in units of four rectifiers).

(19) Direct current connecting switches. 50X1-HUM

(20) Aluminum rails.

(21) 800-V direct-current rail connection to electrolysis shop.

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Information

13. The director of the Inota Aluminum Plant was Jozsef Kiss.

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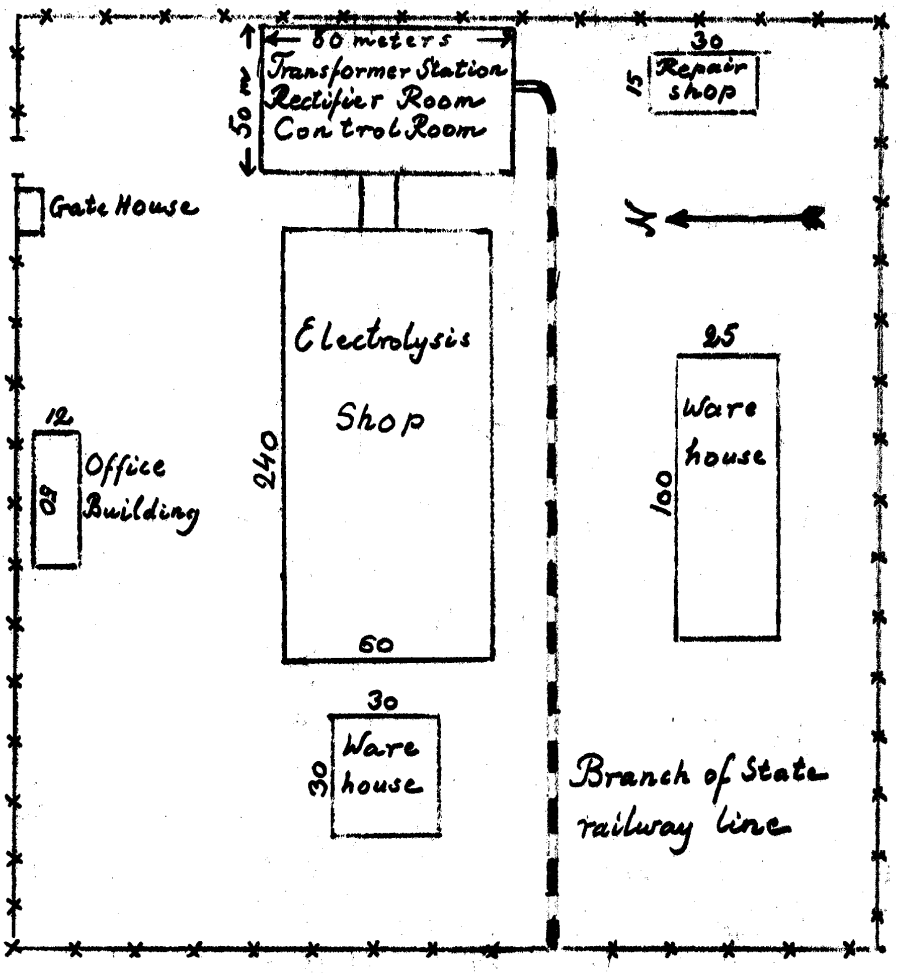
[redacted]

[redacted] SKETCH OF INOTA ALUMINUM PLANT



NOTE: Sizes of buildings and direction (N) are approximate.

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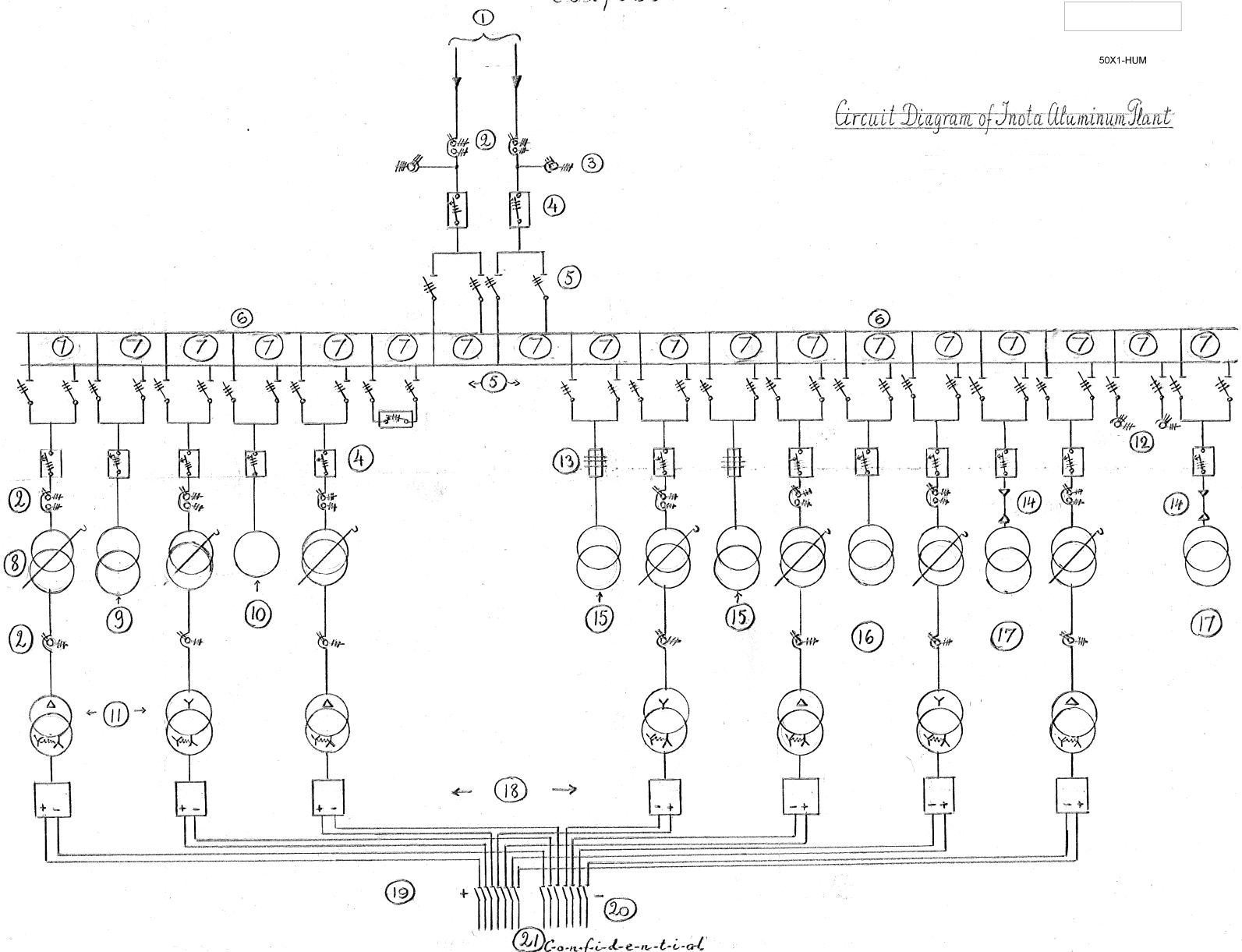
Circuit Diagram of Inota Aluminum Plant



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